

WHAT IS CLAIMED IS:

1. An answer totaling and analyzing apparatus, comprising:
a center unit; plural answer units; and an auxiliary

5 light-projecting and receiving unit, in which

the center unit comprises:

an answer command signal generating means generating
a signal to command a transmission of an answer signal and generating
synchronizing pulses assigning answer periods in which plural windows
10 for answer signal are set on a time base for the plural answer units
respectively;

an answer command signal light-projecting means
projecting the answer command signal as an optical signal;

an answer signal light-receiving means receiving the
15 answer signals light from the plural answer units; and

an totaling and analyzing means detecting, totaling,
and analyzing answers from the answer signal light-receiving means,

the plural answer units respectively comprise:

an answer command signal light-receiving means
20 receiving the answer command signal light emitted by the center unit;

an answer means selecting the window for answer signal
at a time position corresponding to an answer from among plural windows
for answer signal supposed within the answer period assigned by the
answer command signal, and transmitting a pulse signal within the
25 window as an answer signal to represent contents of the answer as
the answer signal; and

an answer signal light-projecting means projecting
the pulse signal transmitted by the answer means as optical signal,

and

the auxiliary light-projecting and receiving unit comprises:

a relay light-receiving means receiving light signals emitted by any one of the center unit, the plural answer units, or
5 the other auxiliary light-projecting and receiving unit when plural auxiliary light-projecting and receiving units exist;

a relay signal generating means generating a relay signal in accordance with the received light signal; and

a relay light-projecting means projecting the relayed
10 signal as an optical signal.

2. The answer totaling and analyzing apparatus according to claim 1,

wherein the answer period defined by the answer command signal from the center unit is divided into plural answer sections by

15 synchronizing pulses, and the answer section having a set of plural windows individually for an answer signal in which the plural answer units individually transmit the answer signals set in the respective answer sections; and the answer signal from each of the plural answer units is the one in which the pulse of the answer signal is respectively
20 transmitted and emitted a light pulse in the window for answer signal selected to correspond to an answer from among the plural windows for answer signal respectively set in the plural answer sections within the answer period.

3. The answer totaling and analyzing apparatus according
25 to claim 1,

wherein the auxiliary light-projecting and receiving unit includes a light-emitting pausing means pausing light-emitting for a time shorter than a time of the minimum pulse interval in a regular

signal pulse train immediately after receiving one signal light pulse from one of the other units and emitting for relaying.

4. The answer totaling and analyzing apparatus according to claim 1,

5 wherein the auxiliary light-projecting and receiving unit is disposed at an upper space of a meeting room where the answer totaling and analyzing apparatus is used.

5. The answer totaling and analyzing apparatus according to claim 1,

10 wherein the auxiliary light-projecting and receiving unit includes a balloon to thereby spatially dispose at an upper portion of the meeting room where the answer totaling and analyzing apparatus is used.

15 6. The answer totaling and analyzing apparatus according to claim 1,

wherein the center unit comprises a calibration signal transmitting means transmitting a calibration signal preceding to a signal respectively specifying the answer period for the plural answer units in the answer command signal, the plural answer units
20 respectively comprise calibration response signal transmitting means transmitting a calibration response signal preceding to the answer signal with responding to the calibration signal, and the center unit further comprises a read time adjusting means measuring
25 plural answer units from time differences between the calibration signal transmitted by the center unit and the respective calibration response signals replied from the respective plural answer units, and adjusting read times of the answer signals from the respective

plural answer units based on the measured signal transmission times.